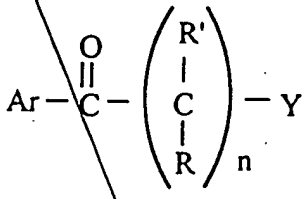
CLAIMS

1. A pharmaceutical composition for improving excretory potency of the urinary bladder which comprises a non-carbamate amine compound having an acetylcholinesterase-inhibiting action together with a pharmaceutically acceptable carrier.

2. The pharmaceutical composition according to claim 1, wherein said non-carbamate amine compound is a compound of the formula:



wherein Ar is an optionally condensed phenyl in which the phenyl moiety may be substituted by a substituent or substituents;

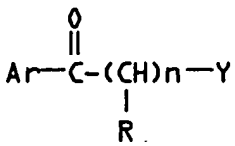
n is an integer from 1 to 10;

R and R' are hydrogen, halogen or an optionally substituted hydrocarbon group;

Y is an optionally substituted amino or an optionally substituted nitrogen-containing heterocyclic group;

or a salt thereof.

3. The pharmaceutical composition according to claim 1, wherein said non-carbamate amine compound has the formula:



wherein Ar is an optionally condensed phenyl in which the phenyl moiety may be substituted by a substituent or substituents;

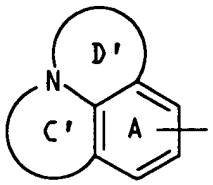
n is an integer from 1 to 10;

R is hydrogen or an optionally substituted hydrocarbon group;

Y is an optionally substituted amino or an optionally substituted nitrogen-containing saturated heterocyclic group;

or a salt thereof.

4. The pharmaceutical composition according to claim 3, wherein Ar is a group of the formula:



wherein ring A is an optionally substituted benzene ring; and rings C' and D' are each a 5- to 9-membered nitrogen-containing heterocycle which may further be substituted by oxo.

5. The pharmaceutical composition according to claim 3, wherein said ring A is a benzene ring which may be substituted by 1 or 2 substituents selected from (i) optionally halogenated lower alkyl, (ii) halogen, (iii) lower alkylenedioxy, (iv) nitro, (v) cyano, (vi) hydroxy, (vii) optionally halogenated lower alkoxy, (viii) cycloalkyl, (ix) optionally halogenated lower alkylthio, (x) amino, (xi) mono-lower alkylamino, (xii) di-lower alkylamino, (xiii) 5- to 7-membered cyclic amino, (xiv) lower alkyl-carbonylamino, (xv) lower alkyl-sulfonylamino, (xvi) lower alkoxy-carbonyl, (xvii) carboxy, (xviii) lower alkyl-carbonyl, (xix) cycloalkyl-carbonyl, (xx) carbamoyl or thiocarbamoyl, (xxi) mono-lower alkyl-carbamoyl, (xxii) di-lower alkyl-carbamoyl, (xxiii) lower alkylsulfonyl, (xxiv) cycloalkylsulfonyl, (xxv) phenyl, (xxvi) naphthyl, (xxvii) mono-phenyl-lower alkyl, (xxviii) di-phenyl-lower alkyl, (xxix) mono-phenyl-lower alkyl-carbonyloxy, (xxx) di-phenyl-lower alkyl-carbonyloxy, (xxxi) phenoxy, (xxxii) mono-phenyl-lower alkyl-carbonyl, (xxxiii) di-phenyl-lower alkyl-carbonyl, (xxxiv) benzoyl, (xxxv) phenoxycarbonyl, (xxxvi) phenyl-lower alkyl-carbamoyl, (xxxvii) phenylcarbamoyl, (xxxviii) phenyl-lower alkyl-carbonylamino, (xxxix) phenyl-lower alkylamino, (xxxx) phenyl-lower alkylsulfonyl, (xxxxi) phenylsulfonyl, (xxxxii)

phenyl-lower alkylsulfinyl, (xxxxiii) phenyl-lower alkylsulfonylamino, and (xxxxiv) phenylsulfonylamino;

wherein the phenyl, naphthyl, mono-phenyl-lower alkyl, di-phenyl-lower alkyl, mono-phenyl-lower alkyl-carbonyloxy, di-phenyl-lower alkyl-carbonyloxy, phenoxy, mono-phenyl-lower alkyl-carbonyl, di-phenyl-lower alkyl-carbonyl, benzoyl, phenoxycarbonyl, phenyl-lower alkyl-carbamoyl, phenylcarbamoyl, phenyl-lower alkyl-carbonylamino, phenyl-lower alkylamino, phenyl-lower alkylsulfonyl, phenylsulfonyl, phenyl-lower alkylsulfinyl, phenyl-lower alkylsulfonylamino and phenylsulfonylamino in (xxv) to (xxxxiv) may further be substituted by 1 to 4 substituents selected from lower alkyl, lower alkoxy, halogen, hydroxy, benzyloxy, amino, mono-lower alkylamino, di-lower alkylamino, nitro, lower alkyl-carbonyl and benzoyl; and

wherein rings C' and D' are each a 5- to 9-membered nitrogen-containing heterocycle which may further be substituted by oxo and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom.

6. The pharmaceutical composition according to claim 3, wherein n is 2.

7. The pharmaceutical composition according to claim 3, wherein R is:

(I) hydrogen or

(II) alkyl, alkenyl, alkynyl, cycloalkyl, bridged cyclic lower saturated hydrocarbon group, aryl, aralkyl, aryl-alkenyl, aryl-C_{2-12} alkynyl, cycloalkyl-alkyl or aryl-aryl-C_{1-10} alkyl which may be substituted by 1 to 5 substituents selected from (i) halogen, (ii) nitro, (iii) cyano, (iv) oxo, (v) hydroxy, (vi) optionally halogenated lower alkyl, (vii) optionally halogenated lower alkoxy, (viii) optionally halogenated lower alkylthio, (ix) amino, (x) mono-lower alkylamino, (xi) di-lower alkylamino, (xii) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (xiii) lower alkyl-carbonylamino, (xiv) lower alkyl-sulfonylamino, (xv) lower alkoxy-carbonyl, (xvi) carboxy, (xvii) lower alkyl-carbonyl, (xviii) carbamoyl or thiocarbamoyl, (xix) mono-

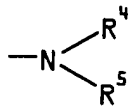
lower alkyl-carbamoyl, (xx) di-lower alkyl-carbamoyl, (xxi) lower alkylsulfonyl, (xxii) lower alkoxy-carbonyl-lower alkyl, (xxiii) carboxy-lower alkyl, (xxiv) 5- to 14-membered heterocyclic group which contains 1 to 6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, (xxv) C_{6-14} aryl, (xxvi) C_{7-16} aralkyl, (xxvii) ureido, 3-methylureido, 3-ethylureido, 3-phenylureido, 3-(4-fluorophenyl)ureido, 3-(2-methylphenyl)ureido, 3-(4-methoxyphenyl)ureido, 3-(2,4-difluorophenyl)ureido, 3-[3,5-bis(trifluoromethyl)phenyl]ureido, 3-benzylureido, 3-(1-naphthyl)ureido, or 3-(2-biphenylyl)ureido, (xxviii) thioureido, 3-methylthioureido, 3-ethylthioureido, 3-phenylthioureido, 3-(4-fluorophenyl)thioureido, 3-(4-methylphenyl)thioureido, 3-(4-methoxyphenyl)thioureido, 3-(2,4-dichlorophenyl)thioureido, 3-benzylthioureido, or 3-(1-naphthyl)thioureido, (xxix) amidino, N^1-methylamidino, N^1-ethylamidino, N^1-phenylamidino, N^1,N^1-dimethylamidino, N^1,N^2-dimethylamidino, N^1-methyl-N^1-ethylamidino, N^1,N^1-diethylamidino, N^1-methyl-N^1-phenylamidino, or N^1,N^1-di(4-nitrophenyl)amidino, (xxx) guanidino, 3-methyl-guanidino, 3,3-dimethylguanidino, or 3,3-diethylguanidino, (xxxi) pyrrolidinocarbonyl, piperidinocarbonyl, (4-methyl-piperidino)carbonyl, (4-phenylpiperidino)carbonyl, (4-benzylpiperidino)carbonyl, (4-benzoylpiperidino)carbonyl, [4-(4-fluorobenzoyl)piperidino]carbonyl, (4-methyl-piperazino)carbonyl, (4-phenylpiperazino)carbonyl, [4-(4-nitrophenyl)piperazino]carbonyl, (4-benzylpiperazino)-carbonyl, morpholinocarbonyl, or thiomorpholinocarbonyl, (xxxii) aminothiocarbonyl, methylaminothiocarbonyl, or dimethylaminothiocarbonyl, (xxxiii) aminosulfonyl, methyl-aminosulfonyl, or dimethylaminosulfonyl, (xxxiv) phenyl-sulfonylamino, (4-methylphenyl)sulfonylamino, (4-chloro-phenyl)sulfonylamino, (2,5-dichlorophenyl)sulfonylamino, (4-

methoxyphenyl)sulfonylamino, (4-acetylaminophenyl)-sulfonylamino, or (4-nitrophenyl)phenylsulfonylamino, (xxxv) sulfo, (xxxvi) sulfino, (xxxvii) sulfeno, (xxxviii) lower alkylsulfo, (xxxix) lower alkylsulfino, (xxxx) lower alkylsulfeno, (xxxxi) phosphono, and (xxxxii) di-lower alkoxyphosphoryl.

8. The pharmaceutical composition according to claim 3, wherein R is hydrogen.

9. The pharmaceutical composition according to claim 3, wherein Y is:

(A) a group of the formula:



wherein R^4 and R^5 each is:

(I) hydrogen,

(II) alkyl, alkenyl, alkynyl, cycloalkyl, bridged cyclic lower saturated hydrocarbon group, aryl, aralkyl, aryl-alkenyl, aryl-C_{2-12} alkynyl, cycloalkyl-alkyl or aryl-aryl-C_{1-10} alkyl which may be substituted by 1 to 5 substituents selected from (i) halogen, (ii) nitro, (iii) cyano, (iv) oxo, (v) hydroxy, (vi) optionally halogenated lower alkyl, (vii) optionally halogenated lower alkoxy, (viii) optionally halogenated lower alkylthio, (ix) amino, (x) mono-lower alkylamino, (xi) di-lower alkylamino, (xii) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (xiii) lower alkyl-carbonylamino, (xiv) lower alkyl-sulfonylamino, (xv) lower alkoxy-carbonyl, (xvi) carboxy, (xvii) lower alkyl-carbonyl, (xviii) carbamoyl or thiocarbamoyl, (xix) mono-lower alkyl-carbamoyl, (xx) di-lower alkyl-carbamoyl, (xxi) lower alkylsulfonyl, (xxii) lower alkoxy-carbonyl-lower alkyl, (xxiii) carboxy-lower alkyl, (xxiv) 5- to 14-membered heterocyclic group which contains 1 to 6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12)

5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, (xxv) C_{6-14} aryl, (xxvi) C_{7-16} aralkyl, (xxvii) ureido, 3-methylureido, 3-ethylureido, 3-phenylureido, 3-(4-fluorophenyl)ureido, 3-(2-methylphenyl)ureido, 3-(4-methoxyphenyl)ureido, 3-(2,4-difluorophenyl)ureido, 3-[3,5-bis(trifluoromethyl)phenyl]ureido, 3-benzylureido, 3-(1-naphthyl)ureido, or 3-(2-biphenylyl)ureido, (xxviii) thioureido, 3-methylthioureido, 3-ethylthioureido, 3-phenylthioureido, 3-(4-fluorophenyl)thioureido, 3-(4-methylphenyl)thioureido, 3-(4-methoxyphenyl)thioureido, 3-(2,4-dichlorophenyl)thioureido, 3-benzylthioureido, or 3-(1-naphthyl)thioureido, (xxix) amidino, N^1-methylamidino, N^1-ethylamidino, N^1-phenylamidino, N^1,N^1-dimethylamidino, N^1,N^2-dimethylamidino, N^1-methyl-N^1-ethylamidino, N^1,N^1-diethylamidino, N^1-methyl-N^1-phenylamidino, or N^1,N^1-di(4-nitrophenyl)amidino, (xxx) guanidino, 3-methyl-guanidino, 3,3-dimethylguanidino, or 3,3-diethylguanidino, (xxxi) pyrrolidinocarbonyl, piperidinocarbonyl, (4-methyl-piperidino)carbonyl, (4-phenylpiperidino)carbonyl, (4-benzylpiperidino)carbonyl, (4-benzoylpiperidino)carbonyl, [4-(4-fluorobenzoyl)piperidino]carbonyl, (4-methylpiperazino)carbonyl, (4-phenylpiperazino)carbonyl, [4-(4-nitrophenyl)piperazino]carbonyl, (4-benzylpiperazino)carbonyl, morpholinocarbonyl, or thiomorpholinocarbonyl, (xxxii) aminothiocarbonyl, methylaminothiocarbonyl, or dimethylaminothiocarbonyl, (xxxiii) aminosulfonyl, methylaminosulfonyl, or dimethylaminosulfonyl, (xxxiv) phenylsulfonylamino, (4-methylphenyl)sulfonylamino, (4-chlorophenyl)sulfonylamino, (2,5-dichlorophenyl)sulfonylamino, (4-methoxyphenyl)sulfonylamino, (4-acetylaminophenyl)sulfonylamino, or (4-nitrophenyl)phenylsulfonylamino, (xxxv) sulfo, (xxxvi) sulfino, (xxxvii) sulfeno, (xxxviii) lower alkylsulfo, (xxxix) lower alkylsulfino, (xxxx) lower alkylsulfeno, (xxxxi) phosphono, and (xxxxii) di-lower alkoxyphosphoryl; or

(III) acyl of the formula: $-(C=O)-R^2$, $-(C=O)-OR^2$, $-(C=O)-NR^2R^3$, $-SO_2-R^2$, $-SO-R^2$, $-(C=S)-OR^2$ or $-(C=S)NR^2R^3$ wherein R^2 and R^3 each is [1] hydrogen, [2] alkyl, alkenyl,

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alkynyl, cycloalkyl, bridged cyclic lower saturated hydrocarbon group, aryl, aralkyl, aryl-alkenyl, aryl-C_{2-12} alkynyl, cycloalkyl-alkyl or aryl-aryl-C_{1-10} alkyl which may be substituted by 1 to 5 substituents selected from (i) halogen, (ii) nitro, (iii) cyano, (iv) oxo, (v) hydroxy, (vi) optionally halogenated lower alkyl, (vii) optionally halogenated lower alkoxy, (viii) optionally halogenated lower alkylthio, (ix) amino, (x) mono-lower alkylamino, (xi) di-lower alkylamino, (xii) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (xiii) lower alkyl-carbonylamino, (xiv) lower alkyl-sulfonylamino, (xv) lower alkoxy-carbonyl, (xvi) carboxy, (xvii) lower alkyl-carbonyl, (xviii) carbamoyl or thiocarbamoyl, (xix) mono-lower alkyl-carbamoyl, (xx) di-lower alkyl-carbamoyl, (xxi) lower alkylsulfonyl, (xxii) lower alkoxy-carbonyl-lower alkyl, (xxiii) carboxy-lower alkyl, (xxiv) 5- to 14-membered heterocyclic group which contains 1 to 6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, (xxv) C_{6-14} aryl, (xxvi) C_{7-16} aralkyl, (xxvii) ureido, 3-methylureido, 3-ethylureido, 3-phenylureido, 3-(4-fluorophenyl)ureido, 3-(2-methylphenyl)ureido, 3-(4-methoxyphenyl)ureido, 3-(2,4-difluorophenyl)ureido, 3-[3,5-bis(trifluoromethyl)phenyl]ureido, 3-benzylureido, 3-(1-naphthyl)ureido, or 3-(2-biphenylyl)ureido, (xxviii) thioureido, 3-methylthioureido, 3-ethylthioureido, 3-phenylthioureido, 3-(4-fluorophenyl)thioureido, 3-(4-methylphenyl)thioureido, 3-(4-methoxyphenyl)thioureido, 3-(2,4-dichlorophenyl)thioureido, 3-benzylthioureido, or 3-(1-naphthyl)thioureido, (xxix) amidino, N^1-methylamidino, N^1-ethylamidino, N^1-phenylamidino, N^1,N^1-dimethylamidino, N^1,N^2-dimethylamidino, N^1-methyl-N^1-ethylamidino, N^1,N^1-diethylamidino, N^1-methyl-N^1-phenylamidino, or N^1,N^1-di(4-nitrophenyl)amidino,

(xxx) guanidino, 3-methylguanidino, 3,3-dimethylguanidino, or 3,3-diethylguanidino, (xxxi) pyrrolidinocarbonyl, piperidinocarbonyl, (4-methyl-piperidino)carbonyl, (4-phenylpiperidino)carbonyl, (4-benzylpiperidino)carbonyl, (4-benzoylpiperidino)carbonyl, [4-(4-fluorobenzoyl)piperidino]carbonyl, (4-methylpiperazino)carbonyl, (4-phenylpiperazino)carbonyl, [4-(4-nitrophenyl)piperazino]carbonyl, (4-benzylpiperazino)carbonyl, morpholinocarbonyl, or thiomorpholinocarbonyl, (xxxii) aminothiocarbonyl, methylaminothiocarbonyl, or dimethylaminothiocarbonyl, (xxxiii) aminosulfonyl, methylaminosulfonyl, or dimethylaminosulfonyl, (xxxiv) phenylsulfonylamino, (4-methylphenyl)sulfonylamino, (4-chlorophenyl)sulfonylamino, (2,5-dichlorophenyl)sulfonylamino, (4-methoxyphenyl)sulfonylamino, (4-acetylaminophenyl)sulfonylamino, or (4-nitrophenyl)phenylsulfonylamino, (xxxv) sulfo, (xxxvi) sulfino, (xxxvii) sulfeno, (xxxviii) lower alkylsulfo, (xxxix) lower alkylsulfino, (xxxx) lower alkylsulfeno, (xxxxi) phosphono, and (xxxxii) di-lower alkoxyphosphoryl, [3] 5- to 14-membered heterocyclic group which contains 1 to 6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, [4] R^2 and R^3 are taken together with the adjacent nitrogen atom to form a 5- to 9-membered nitrogen-containing saturated heterocyclic group and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, wherein the heterocyclic group may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to

carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl; or

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(B) a 5- to 9-membered nitrogen-containing saturated heterocyclic group and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom,

wherein said heterocyclic group may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, and

wherein the nitrogen atom in said nitrogen-containing saturated heterocyclic group may be substituted by (I) alkyl, alkenyl, alkynyl, cycloalkyl, bridged cyclic lower saturated hydrocarbon group, aryl, aralkyl, aryl-alkenyl, aryl-C_{2-12} alkynyl, cycloalkyl-alkyl or aryl-aryl-C_{1-10} alkyl which may be substituted by 1 to 5 substituents selected from (i) halogen, (ii) nitro, (iii) cyano, (iv) oxo, (v) hydroxy, (vi) optionally halogenated lower alkyl, (vii) optionally halogenated lower alkoxy, (viii) optionally halogenated lower alkylthio, (ix) amino, (x) mono-lower alkylamino, (xi) di-lower alkylamino, (xii) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (xiii) lower alkyl-carbonylamino, (xiv) lower alkylsulfonylamino, (xv) lower alkoxy-carbonyl, (xvi) carboxy, (xvii) lower alkyl-carbonyl, (xviii) carbamoyl or thiocarbamoyl, (xix) mono-lower alkyl-carbamoyl, (xx) di-lower alkyl-carbamoyl, (xxi) lower alkylsulfonyl, (xxii) lower alkoxy-carbonyl-lower alkyl, (xxiii) carboxy-lower alkyl, (xxiv) 5- to 14-membered heterocyclic group which contains 1 to

6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, (xxv) C_{6-14} aryl, (xxvi) C_{7-16} aralkyl, (xxvii) ureido, 3-methylureido, 3-ethylureido, 3-phenylureido, 3-(4-fluorophenyl)ureido, 3-(2-methylphenyl)ureido, 3-(4-methoxyphenyl)ureido, 3-(2,4-difluorophenyl)ureido, 3-[3,5-bis(trifluoromethyl)phenyl]ureido, 3-benzylureido, 3-(1-naphthyl)ureido, or 3-(2-biphenylyl)ureido, (xxviii) thioureido, 3-methylthioureido, 3-ethylthioureido, 3-phenylthioureido, 3-(4-fluorophenyl)thioureido, 3-(4-methylphenyl)thioureido, 3-(4-methoxyphenyl)thioureido, 3-(2,4-dichlorophenyl)thioureido, 3-benzylthioureido, or 3-(1-naphthyl)thioureido, (xxix) amidino, N^1-methylamidino, N^1-ethylamidino, N^1-phenylamidino, N^1,N^1-dimethylamidino, N^1,N^2-dimethylamidino, N^1-methyl-N^1-ethylamidino, N^1,N^1-diethylamidino, N^1-methyl-N^1-phenylamidino, or N^1,N^1-di(4-nitrophenyl)amidino, (xxx) guanidino, 3-methylguanidino, 3,3-dimethylguanidino, or 3,3-diethylguanidino, (xxxi) pyrrolidinocarbonyl, piperidinocarbonyl, (4-methyl-piperidino)carbonyl, (4-phenylpiperidino)carbonyl, (4-benzylpiperidino)carbonyl, (4-benzoylpiperidino)carbonyl, [4-(4-fluorobenzoyl)piperidino]carbonyl, (4-methylpiperazino)carbonyl, (4-phenylpiperazino)carbonyl, [4-(4-nitrophenyl)piperazino]carbonyl, (4-benzylpiperazino)carbonyl, morpholinocarbonyl, or thiomorpholinocarbonyl, (xxxii) aminothiocarbonyl, methylaminothiocarbonyl, or dimethylaminothiocarbonyl, (xxxiii) aminosulfonyl, methylaminosulfonyl, or dimethylaminosulfonyl, (xxxiv) phenylsulfonylamino, (4-methylphenyl)sulfonylamino, (4-chlorophenyl)sulfonylamino, (2,5-dichlorophenyl)sulfonylamino, (4-methoxyphenyl)sulfonylamino, (4-acetylaminophenyl)-sulfonylamino, or (4-nitrophenyl)phenylsulfonylamino, (xxxv) sulfo, (xxxvi) sulfino, (xxxvii) sulfeno,

(xxxviii) lower alkylsulfo, (xxxix) lower alkylsulfino, (xxxx) lower alkylsulfeno, (xxxxi) phosphono, and (xxxxii) di-lower alkoxyphosphoryl,

(II) acyl of the formula: $-(C=O)-R^2$, $-(C=O)-OR^2$, $-(C=O)-NR^2R^3$, $-SO_2-R^2$, $-SO-R^2$, $-(C=S)-OR^2$ or $-(C=S)NR^2R^3$, wherein R^2 and R^3 each is [1] hydrogen, or [2] alkyl, alkenyl, alkynyl, cycloalkyl, bridged cyclic lower saturated hydrocarbon group, aryl, aralkyl, aryl-alkenyl, aryl-C_{2-12} alkynyl, cycloalkyl-alkyl or aryl-aryl-C_{1-10} alkyl which may be substituted by 1 to 5 substituents selected from (i) halogen, (ii) nitro, (iii) cyano, (iv) oxo, (v) hydroxy, (vi) optionally halogenated lower alkyl, (vii) optionally halogenated lower alkoxy, (viii) optionally halogenated lower alkylthio, (ix) amino, (x) mono-lower alkylamino, (xi) di-lower alkylamino, (xii) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (xiii) lower alkyl-carbonylamino, (xiv) lower alkylsulfonylamino, (xv) lower alkoxy-carbonyl, (xvi) carboxy, (xvii) lower alkyl-carbonyl, (xviii) carbamoyl or thiocarbamoyl, (xix) mono-lower alkyl-carbamoyl, (xx) di-lower alkyl-carbamoyl, (xxi) lower alkylsulfonyl, (xxii) lower alkoxy-carbonyl-lower alkyl, (xxiii) carboxy-lower alkyl, (xxiv) 5- to 14-membered heterocyclic group which contains 1 to 6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkylcarbamoyl, (20) di-lower alkyl-carbamoyl, and (21) lower alkylsulfonyl, (xxv) C_{6-14} aryl, (xxvi) C_{7-16} aralkyl, (xxvii) ureido, 3-methylureido, 3-ethylureido, 3-phenylureido, 3-(4-fluorophenyl)ureido, 3-(2-methylphenyl)ureido, 3-(4-methoxyphenyl)ureido, 3-(2,4-difluorophenyl)ureido, 3-[3,5-bis(trifluoromethyl)phenyl]ureido, 3-benzylureido, 3-(1-naphthyl)ureido, or 3-(2-biphenylyl)ureido, (xxviii) thioureido, 3-methylthioureido, 3-ethylthioureido, 3-phenylthioureido, 3-(4-fluorophenyl)thioureido, 3-(4-methylphenyl)thioureido, 3-(4-methoxyphenyl)thioureido, 3-(2,4-

dichlorophenyl)thioureido, 3-benzylthioureido, or 3-(1-naphthyl)thioureido, (xxix) amidino, N^1-methylamidino, N^1-ethylamidino, N^1-phenylamidino, N^1,N^1-dimethylamidino, N^1,N^2-dimethylamidino, N^1-methyl-N^1-ethylamidino, N^1,N^1-diethylamidino, N^1-methyl-N^1-phenylamidino, or N^1,N^1-di(4-nitrophenyl)amidino, (xxx) guanidino, 3-methylguanidino, 3,3-dimethylguanidino, or 3,3-diethylguanidino, (xxxi) pyrrolidinocarbonyl, piperidinocarbonyl, (4-methylpiperidino)carbonyl, (4-phenylpiperidino)carbonyl, (4-benzylpiperidino)carbonyl, (4-benzoylpiperidino)carbonyl, [4-(4-fluorobenzoyl)piperidino]carbonyl, (4-methylpiperazino)carbonyl, (4-phenylpiperazino)carbonyl, [4-(4-nitrophenyl)piperazino]carbonyl, (4-benzylpiperazino)carbonyl, morpholinocarbonyl, or thiomorpholinocarbonyl, (xxxii) aminothiocarbonyl, methylaminothiocarbonyl, or dimethylaminothiocarbonyl, (xxxiii) aminosulfonyl, methylaminosulfonyl, or dimethylaminosulfonyl, (xxxiv) phenylsulfonylamino, (4-methylphenyl)sulfonylamino, (4-chlorophenyl)sulfonylamino, (2,5-dichlorophenyl)sulfonylamino, (4-methoxyphenyl)sulfonylamino, (4-acetylaminophenyl)sulfonylamino, or (4-nitrophenyl)phenylsulfonylamino, (xxxv) sulfo, (xxxvi) sulfino, (xxxvii) sulfeno, (xxxviii) lower alkylsulfo, (xxxix) lower alkylsulfino, (xxxx) lower alkylsulfeno, (xxxxi) phosphono, and (xxxxii) di-lower alkoxyphosphoryl, or

(III) 5- to 14-membered heterocyclic group which contains 1 to 6 heteroatoms selected from nitrogen, oxygen and sulfur and which may be substituted by 1 to 5 substituents selected from (1) halogen, (2) nitro, (3) cyano, (4) oxo, (5) hydroxy, (6) lower alkyl, (7) lower alkoxy, (8) lower alkylthio, (9) amino, (10) mono-lower alkylamino, (11) di-lower alkylamino, (12) 5- to 7-membered cyclic amino and which may contain 1 to 3 heteroatoms selected from nitrogen, oxygen and sulfur in addition to carbon atoms and one nitrogen atom, (13) lower alkyl-carbonylamino, (14) lower alkylsulfonylamino, (15) lower alkoxy-carbonyl, (16) carboxy, (17) lower alkyl-carbonyl, (18) carbamoyl or thiocarbamoyl, (19) mono-lower alkyl-carbamoyl, (20) di-lower alkyl-carbamoyl and (21) lower alkylsulfonyl.

10. The pharmaceutical composition according to claim 3, wherein Y is a group of the formula:

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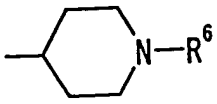

wherein R^6 is hydrogen, optionally substituted hydrocarbon group, acyl, or optionally substituted heterocyclic group.

10 11. The pharmaceutical composition according to claim 3, wherein Ar is a group of the formula:

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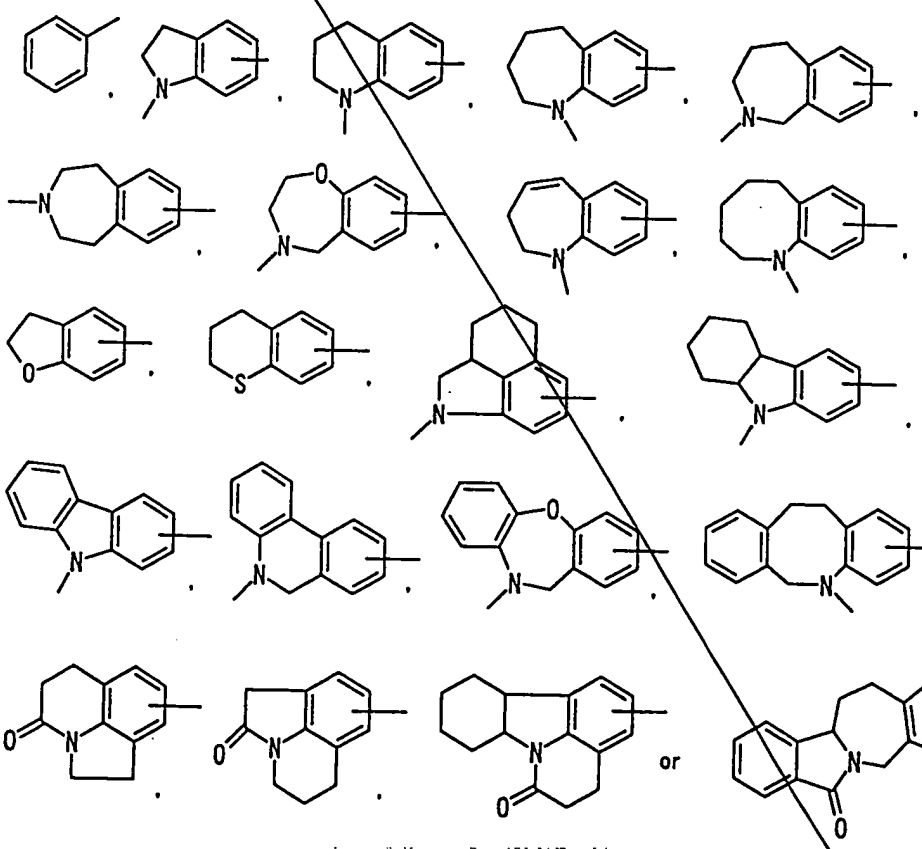

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and when Ar is phenyl, the phenyl may be substituted by substituent(s) selected from (1) halogen, (2) C_{1-6} alkoxy, (3) amino, (4) mono- or di-C_{1-6} alkylamino, (5) pyrrolidino,

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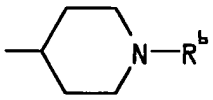
(6) piperidino, (7) piperazino, (8) N-methylpiperazino, (9) N-acetylpiperazino, (10) morpholino, (11) hexamethylenimino, (12) imidazolyl, and (13) C_{1-6} alkyl which may be substituted by a carboxy optionally esterified by C_{1-6} alkyl;

wherein when Ar is a condensed phenyl, its heterocyclic portion may be substituted by substituent(s) selected from (1) C_{1-6} alkyl, (2) C_{7-16} aralkyl which may be substituted by substituent(s) selected from halogen, C_{1-6} alkyl, C_{1-6} alkoxy and nitro, (3) C_{1-6} alkyl-carbonyl, (4) C_{7-16} aralkyl-carbonyl, (5) C_{6-14} aryl-carbonyl, (6) C_{1-6} alkyl-carbonyl-C_{6-14} aryl, (7) C_{1-6} alkoxy-carbonyl-C_{6-14} aryl and (8) pyridyl;

n is 2;

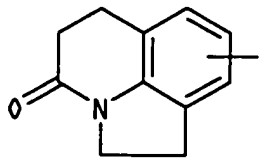
R is hydrogen; and

Y is a group of the formula:



wherein R^6 is (1) hydrogen, (2) C_{1-6} alkyl which may have a substituent or substituents selected from cyano, hydroxy, mono- or di-C_{1-6} alkylamino, pyridyl, and carboxy optionally esterified, (3) C_{7-16} aralkyl which may be substituted by substituent(s) selected from halogen, C_{1-6} alkyl, halogeno C_{1-6} alkyl, hydroxy, C_{1-6} alkoxy, nitro, amino, cyano, carbamoyl, C_{1-6} alkoxy optionally substituted by carboxy which may be esterified, carbamoyl optionally substituted by C_{1-6} alkyl or amino optionally substituted by formyl, and C_{1-3} alkylenedioxy, (4) C_{1-6} alkyl which may be substituted by carboxy optionally esterified, or (5) C_{1-6} alkyl-carbonyl optionally substituted by mono- or di-C_{1-6} alkylamino.

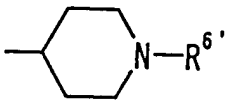
12. The pharmaceutical composition according to claim 3, wherein Ar is a group of the formula:



n is 2;

R is hydrogen; and

Y is a group of the formula:



wherein $R^{6'}$ is a benzyl which may be substituted by 1 or 2 substituents selected from halogen, C_{1-3} alkyl, C_{1-3} alkoxy, cyano, nitro and hydroxy.

13. The pharmaceutical composition according to claim 1, which comprises:

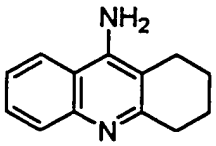
8-[3-[1-[(3-fluorophenyl)methyl]-4-piperidinyl]-1-oxopropyl]-1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolin-4-one;

8-[3-[1-(phenylmethyl)-4-piperidinyl]-1-oxopropyl]-1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolin-4-one; or

8-[3-[1-[(2-hydroxyphenyl)methyl)-4-piperidinyl]-1-oxopropyl]-1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolin-4-one;

or a salt thereof.

14. The pharmaceutical composition according to claim 1, wherein said amine compound is 9-amino-1,2,3,4-tetrahydroacridine of the formula:



or a salt thereof.

15. A method for the treatment of dysuria which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

16. A method for the treatment of difficulty of urination which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

C1 Cont

17. A pharmaceutical composition for improving excretory potency of the urinary bladder which comprises a combination of an α-blocker and a non-carbamate amine compound having an acetylcholinesterase- inhibiting action.

18. A process for producing a pharmaceutical composition for improving excretory potency of a urinary bladder comprising combining a non-carbamate amine compound having an acetylcholinesterase-inhibiting action and a pharmaceutically acceptable carrier .

19. A method for improving the excretory potency of a urinary bladder which comprises administering a therepeutically effective amount of an amine compound of non-carbamate-type having an acetylcholinesterase-inhibiting action to a patient in need thereof.

20. A pharmaceutical composition according to claim 1, wherein said amine compound is 8-[3-[1-[(3-fluorophenyl)methyl]-4-piperidinyl]-1-oxopropyl]-1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolin-4-one or a salt thereof.

21. A method for the treatment of dysuria caused by prostatomegaly which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

22. A method for the treatment of dysuria caused by hypotonic bladder which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

C1 Cont

23. A method for the treatment of dysuria caused by hypotonic bladder induced by prostatic hypertrophy, hypotonic bladder induced by diabetes mellitus, hypotonic bladder induced by diabetic neuropathy, idiopathic hypotonic bladder, age-associated hypotonic bladder, hypotonic bladder induced by multiple sclerosis, hypotonic bladder induced by Parkinson's disease, hypotonic bladder induced by spinal cord injury, postoperative hypotonic bladder or hypotonic bladder induced by brain block, which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

24. A method for the treatment of dysuria caused by neurogenic bladder which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

25. A method for the treatment of dysuria caused by neurogenic bladder induced by diabetes mellitus, neurogenic bladder induced by diabetic neuropathy, neurogenic bladder induced by multiple sclerosis, neurogenic bladder induced by Parkinson's disease, neurogenic bladder induced by spinal cord injury or neurogenic bladder induced by brain block which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 1 to a patient in need thereof.

26. Crystals of 8-[3-[1-[(3-fluorophenyl)methyl]-4-piperidinyl]-1-oxopropyl]-1,2,5,6-tetrahydro- 4H-pyrrolo[3,2,1-ij]quinolin-4-one or a salt thereof.

27. The crystals of claim 26, wherein the melting point of said crystals is above 110°C.

28. The crystals of claim 26, wherein the melting point of said crystals is about 113°C to about 118°C.

29. A pharmaceutical composition which comprises the crystals of claim 26 together with a pharmaceutically acceptable carrier.

30. An acetylcholine esterase inhibitor comprising the pharmaceutical composition according to claim 29.

31. A method for improving the excretory potency of a urinary bladder which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 29 to a patient in need thereof.

32. A method for the treatment of micturition disorders which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 29 to a patient in need thereof.

33. A method for the treatment of dysuria disorders which comprises administering a therapeutically effective amount of the pharmaceutical composition according to claim 29 to a patient in need thereof.

34. A pharmaceutical composition for improving the excretory potency of urinary bladder, which comprises crystals of 8-[3-[1-[(3-fluorophenyl)methyl]-4-piperidinyl]-1-oxopropyl]-1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolin-4-one or a salt thereof and an α-blocker.